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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/471,706	12/23/1999	EIICHI SUZUKI	51270-245623	7855

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EXAMINER	
GRAHAM, ANDREW R	
ART UNIT	PAPER NUMBER
2697	

DATE MAILED: 05/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/471,706	SUZUKI, EIICHI	
	Examiner	Art Unit	
	Andrew R Graham	2697	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-4 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-4 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 23 December 1999 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1-4** are rejected under 35 U.S.C. 102(b) as being anticipated by Bonneville (USPN 5729611).

Bonneville discloses an overload protection circuit for a negatively driven loudspeaker. The device comprises both a main feedback loop and a feedback loop for adjusting a voltage controlled amplifier (24) that is a component of the main feedback loop (col. 3, lines 29-44 and 57-62). Regarding **Claim 1**, the overall circuit reads on "An apparatus for use in negative drive of a loudspeaker having an internal impedance to perform a desired amplitude-frequency characteristic". As can be seen in Figure 1, the loudspeaker (10) includes a driving amplifier (16), which reads on "an amplifier device that drives the loudspeaker with a driving voltage" (col. 3, lines 21-

26). The adders (32,42), the amplifiers (30,36,40), the integrators (34,38), the sensor (28), the compensation filter (26), and the voltage adjustable amplifier (24) that make up the main feedback loop read on "a feedback device that performs a positive feedback of a signal corresponding to the driving voltage of the loudspeaker to the amplifier device with variable feedback gain" (col. 3, lines 29-56). The rectifier (44), the threshold amplifiers (46,48), and the charging circuits (50,52) are used to control the output gain of the adjustable amplifiers (22,24), which reads on "an adjustment device that decreases the variable feedback gain of the feedback device as a level of the driving voltage increases".

Regarding **Claim 2**, the rectifier (44) that receives the driving voltage of the loudspeaker (10) reads on "a detector that detects the signal corresponding to the driving voltage in terms of a load voltage of the loudspeaker". A charging circuit (52) converts the output of the threshold amplifier (48) into a voltage that is used to control the adjustable amplifier (24) (col. 3, lines 65-67 and col. 3, lines 1-20). Bonneville also discusses the use of a digital signal processor (DSP) instead of threshold amplifiers and charging circuits, in which case the output of the DSP would have been received by a D-to-A converter (col. 5, lines 51-57). The charging circuits (50,52) and the proposed D-to-A converter both read on "a converter that converts the detected load voltage to a control voltage". The voltage-controlled amplifier (24) reads on "wherein the feedback

device comprises a voltage-controlled amplifier connected between the converter and the amplifier device".

Regarding **Claim 3**, both of the threshold amplifiers (46,48) are used to output a signal that is used to decrease the gain of the driving voltage applied to the output transducer (10) (col. 4, lines 45-55). Both of these amplifiers output such a control signal only once a specific threshold level has been surpassed (col. 4, lines 45-55). This reads on "the adjustment device decreases the variable feedback gain of the feedback device only if the level of the driving voltage remains under the critical level".

Regarding **Claim 4**, the system of Bonneville employs two threshold devices wherein one threshold is set higher than the other (col. 4, lines 8-20). The second threshold level, implemented through the use of a threshold amplifier (48), is set near to the clipping level and its corresponding charging circuit is designed to have an output that rapidly decreases the gain of amplifier (24). As noted by Bonneville, this means that the driving voltage will only increase minimally beyond the second threshold level and not reach the clipping level (col. 4, lines 55-58). Thus, the functioning of the threshold amplifier (48) and the charging component (52) reads on "the adjustment device decreases the variable feedback gain of the feedback device as the level of the driving voltage increases so as to suppress the amplitude-frequency characteristic of the amplifier device, thereby preventing an output of the amplifier device from clipping".

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Noro et al (USPN 4980920) discloses a negative impedance driving circuit that includes a frequency characteristic control circuit and a temperature compensation circuit.

Takizawa (USPN 4254303) discloses an automatic volume adjusting apparatus that comprises a voltage controlled gain adjusting circuit, a rectifier that detect the voltage applied to the loudspeaker of the system, and an integrator involved in the adjusting of the volume control circuit.

Michelson (USPN 4405831) discloses a selective noise suppression circuit that includes a detection circuit, an adjustable amplifier, and other components for providing automatic signal level control.

Seligman (USPN 6151400) discloses a gain control arrangement that includes a controllable amplifier and a predetermined breakpoint for determining when to decrease the gain applied to the output signal.

Stahl (USPN 4118600) discloses a negative resistance loudspeaker arrangement that includes feedback.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Graham whose telephone number is (703) 308-6729. The examiner can normally be reached on Monday-Friday (7:30-4:30), excluding alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly Williams, can be reached at (703)

305-4863. The fax number for the organization where this application or proceeding is assigned is 703-872-9314 for regular communications, and 703-872-9315 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Andrew Graham
Examiner
A.U. 2697

Kimberly A. Williams
Primary Examiner
Technology Center 2600